



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,579	04/28/2006	Cornelis Leonardus Gerardus Ham	PHNL031281US	2978

38107 7590 03/12/2007
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
595 MINER ROAD
CLEVELAND, OH 44143

EXAMINER

FETZNER, TIFFANY A

ART UNIT	PAPER NUMBER
----------	--------------

2859

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/595,579

Applicant(s)

HAM, CORNELIS LEONARDUS
GERARDUS

Examiner

Tiffany A. Fetzner

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/28/2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>4/28/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on **April 28th 2006** was filed is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the April 28th 2006 information disclosure statement. The initialed and dated **April 28th 2006** information disclosure statement is attached to this office action.

Drawings

3. The drawings are objected to because the "blank boxes" need to be labeled in accordance with the specification.

A) In **figure 1** component **4** should be labeled "**power supply unit**" as taught on page **3** in lines **32-33** of the original specification.

B) In **figure 1** component **6** should be labeled "**Transmitter and receiver**" as taught on page **3** in lines **33-34** of the original specification.

C) In **figure 1** component **8** should be labeled "**monitor**" as taught on page **4** in line **13** of the original specification.

D) In **figure 1** component **9** should be labeled "**transmission/reception circuit**" as taught on page **4** in line **7** of the original specification.

E) In **figure 1** component **10** should be labeled "**signal amplifier and demodulation unit**" as taught on page **4** in lines **6-7** of the original specification.

F) In **figure 1** component **11** should be labeled "**control unit**" as taught on page **4** in line **8** of the original specification

G) In **figure 1** component **12** should be labeled "**processing unit**" as taught on page **4** in line **11** of the original specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be

Art Unit: 2859

labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. **Figure 1** should be designated by a legend such as **--Prior Art--** because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. **Claim 13** is objected to because of the following informalities:

A) The dependency is improper, because there is no antecedence for the recited claim limitations, from **claim 3**. Given the limitations recited, it appears that **claim 13** should depend from **claim 12**. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

Art Unit: 2859

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1-6 and 14** are rejected under **35 U.S.C. 102(e)** as being anticipated by **Petropoulos et al.**, US patent **6,788,057** issued September 7th 2004, filed Feb. 22nd 2002, with an effective US priority date of Feb. 21st 2001..

8. With respect to **Claim 1**, **Petropoulos et al.**, teaches and shows "A gradient coil system for magnetic resonance imaging systems" [See figures 1 and 213 through 19], "comprising at least two X primary coil-like elements" (i.e. one example is in figure 1 the right side bi-planar X coil 14, the left side bi-planar x-coil 14), "at least two Y primary coil-like elements" (i.e. one example is in figure 1 the right side bi-planar Y coil 16, the left side bi-planar Y-coil 16), "and one Z primary coil-like element providing a modular gradient coil system" , (i.e. one example is in figure 1 the uni-planar Z coil 12), "wherein the at least two X primary coil-like elements have mutually different linearity volumes by themselves or in combination with each other, the at least two Y primary coil-like elements have mutually different linearity volumes by themselves or in combination with each other, and the one Z primary coil-like element is placed between the X primary coil-like elements and the Y primary coil-like elements." [See figures 1, 13 through 17; col. 31 line 10 through col. 32 line 47;]

9. With respect to **Claim 2**, **Petropoulos et al.**, shows in figures 1 specifically, and figures 13 through 17 in general; that "the one Z primary coil-like element" (i.e. coil 12) "is placed between the X primary coil-like elements" (i.e. between the right and left X coil 14), "and the Y primary coil-like elements" (i.e. between the right and left Y coil 16), "in such a way that at both sides of the Z primary coil-like element there is arranged at least one X primary coil-like element and at least one Y primary coil-like element." [See figures 1, 13 through 17; col. 31 line 10 through col. 32 line 47;] The same reasons for rejection, which apply to **claim 1** also apply to **claim 2** and need not be reiterated.

10. With respect to **Claim 3**, **Petropoulos et al.**, shows in figures 1 specifically, and figures 13 through 17 in general; that "the one Z primary coil-like element is placed between the two X primary coil-like elements and the two Y primary coil-like elements in such a way that at one side of the Z primary coil-like element there is arranged a first X

Art Unit: 2859

primary coil-like element and a first Y primary coil-like element and that at the other side of the Z primary coil-like element there is arranged a second X primary coil-like element and a second Y primary coil-like element.” [See figures 1, 13 through 17; col. 31 line 10 through col. 32 line 47;] The same reasons for rejection, which apply to **claims 1, 2** also apply to **claim 3** and need not be reiterated.

11. With respect to **Claim 4, Petropoulos et al.**, shows in figures 1 specifically, and figures 13 through 17 in general; that “at least two X shield coil-like elements” (i.e. one example is in figure 1 the right side shielding bi-planar X coil 20, the left side shielding bi-planar X-coil 20), “at least two Y shield coil-like elements” (i.e. one example is in figure 1 the right side shielding bi-planar Y coil 22, the left side shielding bi-planar Y-coil 22), “and one Z shield coil-like element”, (i.e. one example is in figure 1 the shielding uni-planar Z coil 18), “wherein the one Z shield coil-like element is placed between the X shield coil-like elements and the Y shield coil-like elements”. [See figures 1, 13, 15, and 17; along with col. 31 line 10 through col. 32 line 47;] The same reasons for rejection, which apply to **claim 1**, also apply to **claim 4** and need not be reiterated.

12. With respect to **Claim 5, Petropoulos et al.**, shows in figures 1 specifically, and figures 13 through 17 in general; that “the one Z shield coil-like element” (i.e. one example is in figure 1 the shielding uni-planar Z coil 18) “is placed between the X shield coil-like elements” i.e. one example is in figure 1 the right side shielding bi-planar X coil 20, the left side shielding bi-planar X-coil 20), “and the Y shield coil-like elements” (i.e. one example is in figure 1 the right side shielding bi-planar Y coil 22, the left side shielding bi-planar Y-coil 22), “in such a way that at both sides of the Z shield coil-like element there is arranged at least one X shield coil-like element and at least one Y shield coil-like element”. [See figures 1, 13, 15, and 17; along with col. 31 line 10 through col. 32 line 47;] The same reasons for rejection, which apply to **claims 1, 4**, also apply to **claim 5** and need not be reiterated.

13. With respect to **Claim 6, Petropoulos et al.**, shows in figures 1 specifically, and figures 13 through 17 in general; that “the one Z shield coil-like element is placed between the two X shield coil-like elements and the two Y shield coil-like elements in such a way that at one side of the Z shield coil-like element there is arranged a first X

Art Unit: 2859

shield coil-like element and a first Y shield coil-like element and at the other side of the Z shield coil-like element there is arranged a second X shield coil-like element and a second Y shield coil-like element". [See figures 1, 13, 15, and 17; along with col. 31 line 10 through col. 32 line 47;] The same reasons for rejection, which apply to **claims 1, 4, 5** also apply to **claim 6** and need not be reiterated.

14. With respect to **Claim 14, Petropoulos et al.**, teaches and shows "A magnetic resonance imaging system, comprising a main magnet system" [See col. 1 lines 10-37], "a gradient coil system" [See figures 1 and 13 through 19], "a RF system" [See the Rf head coil in figures 1 and 13 through 19] "and a signal processing system" [See the numerous signal processing and mathematical calculations for this MR coil design performed throughout the reference in col. 3 line 15 through col. 31 line 9], "wherein the gradient coil system is a gradient coil system according to claim 1" [See the rejection of claim 1 above.] The same reasons for rejection, which apply to **claim 1** also apply to **claim 14** and need not be reiterated.

15. **Claims 1-6, 11 and 14** are rejected under **35 U.S.C. 102(e)** as being anticipated by **Vavrek et al.**, US patent application publication 2004/0189298 A1 published September 30th 2004, filed April 7th 2004 with an effective us priority date of October 16th 2002.

16. With respect to **Claim 1, Vavrek et al.**, shows from **figure 7** "A gradient coil system for magnetic resonance imaging systems, comprising at least two X primary coil-like elements" (i.e. 176, 178), "at least two Y primary coil-like elements" (188, 186) "and one Z primary coil-like element" (196) "providing a modular gradient coil system" [See figure 7], "wherein the at least two X primary coil-like elements have mutually different linearity volumes by themselves or in combination with each other, the at least two Y primary coil-like elements have mutually different linearity volumes by themselves or in combination with each other, and the one Z primary coil-like element is placed between the X primary coil-like elements and the Y primary coil-like elements." [See figure 7 where 176, 178, 186 and 188 are located on either side of z-coil 196.]

Art Unit: 2859

17. With respect to **Claim 2, Vavrek et al.**, shows from **figure 7** "wherein the one Z primary coil-like element is placed between the X primary coil-like elements and the Y primary coil-like elements in such a way that at both sides of the Z primary coil-like element there is arranged at least one X primary coil-like element and at least one Y primary coil-like element." [See figure 7 where x coils 176, 178; and y coils 186, 188 are located on either side of z-coil 196.]

18. With respect to **Claim 3, Vavrek et al.**, shows from **figure 7** "wherein the one Z primary coil-like element" (196) "is placed between the two X primary coil-like elements" (176, 178) "and the two Y primary coil-like elements" (186, 188) "in such a way that at one side of the Z primary coil-like element" (196) "there is arranged a first X primary coil-like element and a first Y primary coil-like element" (i.e. 176, 186) "and that at the other side of the Z primary coil-like element" (196) "there is arranged a second X primary coil-like element and a second Y primary coil-like element." (i.e. 178, 188) [See figure 7].

19. With respect to **Claim 4, Vavrek et al.**, shows from **figure 7** "at least two X shield coil-like elements" (i.e. 172, 174), "at least two Y shield coil-like elements" (182, 184) "and one Z shield coil-like element" (192), wherein the one Z shield coil-like element is placed between the X shield coil-like elements and the Y shield coil-like elements." [See figure 7].

20. With respect to **Claim 5, Vavrek et al.**, shows from **figure 7** "the one Z shield coil-like element" (192) "is placed between the X shield coil-like elements" (172, 174) "and the Y shield coil-like elements" (182, 184) "in such a way that at both sides of the Z shield coil-like element" (192) "there is arranged at least one X shield coil-like element and at least one Y shield coil-like element." [See figure 7].

21. With respect to **Claim 6, Vavrek et al.**, shows from **figure 7** "the one Z shield coil-like element" (196) "is placed between the two X shield coil-like elements and the two Y shield coil-like elements in such a way that at one side of the Z shield coil-like element there is arranged a first X shield coil-like element and a first Y shield coil-like element and at the other side of the Z shield coil-like element there is arranged a

Art Unit: 2859

second X shield coil-like element and a second Y shield coil-like element." [See the relationship of components 172, 174, 182, 184, and 192 in figure 7.]

22. With respect to **Claim 11, Vavrek et al.**, shows from **figure 7** "the two X primary coil-like elements, the two Y primary coil-like elements and the one Z primary coil-like element provide an inner coil arrangement, that the two X shield coil-like elements, the two Y shield coil-like elements and the one Z shield coil-like element provide an outer coil arrangement," [See figure 7] Additionally **Vavrek et al.**, shows from **figure 7** that a layer comprising epoxy with filler material and/or a GRP tube layer are positioned between the inner coil arrangement and the outer coil arrangement." [See the insulators of figure 7.]

23. With respect to **Claim 14, Vavrek et al.**, shows from **figure 1** "A magnetic resonance imaging system, comprising a main magnet system, a gradient coil system, a RF system and a signal processing system, wherein the gradient coil system is a gradient coil system according to claim 1" [See figures 1, 7 in combination along with paragraphs [0034] through [0040]; and paragraphs [0047] through [0052]].

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject-matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 2859

26. **Claims 7-10, 12-13** are rejected under **35 U.S.C. 103(a)** as being unpatentable over **Vavrek et al.**, US patent application publication 2004/0189298 A1 published September 30th 2004, filed April 7th 2004 with an effective us priority date of October 16th 2002 as applied to **claims 1-6**, and **14** above, and further in view of **Matone et al.**, US patent application publication **2005/0035764 A1** published July 17th 2005, filed August 14th 2003.

27. With respect to **Claims 7, 9 Vavrek et al.**, lacks directly teaching that “the one Z primary coil-like element” (i.e. **claim 7**) or the “the one Z shield coil” (i.e. **claim 9**) [See 196 figure 7] “is made from hollow conductors,” (i.e. cylindrical copper tubes) “and that the one Z primary coil-like element is directly cooled by a cooling fluid flowing through said hollow conductors” However, **Vavrek et al.**, does teach that each gradient coil is a cylinder, capable of nesting other gradient cylinders within it (i.e. each gradient cylinder is hollow) [See paragraphs [0048] and [0049] Therefore **Vavrek et al.**, teaches that “wherein the one Z primary coil-like element is hollow” however, **Matone et al.**, teaches that the coil elements are hollow conductors, [See **Matone et al.**, paragraphs [0006] through [0010] and [0015] through [0024]]. Additionally, **Matone et al.**, teaches that the gradient coils, which include the z-primary coil is “cooled by a cooling fluid flowing through said hollow conductors.” [See **Matone et al.**, paragraphs [0003], [0006] through [0010] and [0015] through [0024]].

28. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the teaching of **Matone et al.**, with the teaching of **Vavrek et al.**, because/ **Matone et al.**, teaches a gradient coil system, similar to **Vavrek et al.**, in that **Matone et al.**, teaches and shows from figures 1, 3, and paragraphs [0015] through [0023] a self-shielded gradient coil assembly where the inner gradient coil windings 112, or 212 comprise primary x-,y-, and z gradient coils, where the x-,y-, and z gradient coils are paired or occur in multiple sets, (i.e. there is at least one of each x, y, and z gradient coil, but the scope also includes having two pairs of each of the x, y, and z gradient coils, as well as multiple sets of the x-,y-, and z gradient coils, serving as the inner gradient coil configuration which is identified as component number 112 or 212 in figures 1 and 3 respectively. Therefore the coil component 112, and 212 actually

Art Unit: 2859

represents a coil configuration, such as is shown in the lower gradient coil assembly of **Vavrek et al.**, it is just that **Matone et al.**, confines the sandwiched lower assembly to a representation as a single gradient cylinder when in fact, the one component number represents a plurality of gradient coils, as is shown by **Vavrek et al.**

29. Additionally the outer gradient coil windings 114, or 214 shield the inner gradient coil set and comprise x-, y-, and z gradient coils, where the x-, y-, and z gradient coils are paired **or** occur in multiple sets, (i.e. there is at least one of each x, y, and z gradient coil, but the scope also includes having two pairs of each of the x, y, and z gradient coils, as well as multiple sets of x-, y-, and z gradient coils, serving as the outer gradient coil configuration which is identified as component number 114 or 214 in figures 1 and 3 respectively. Therefore the coil component 114, and 214 actually represents a coil configuration, such as is shown in the upper gradient coil assembly of **Vavrek et al.**, it is just that **Matone et al.**, confines the sandwiched lower assembly to a representation as a single gradient cylinder when in fact, the one component number represents a plurality of gradient coils, as is shown by **Vavrek et al.**

30. Therefore the combinational arrangement of the **Vavrek et al.**, gradient layers, and the basic gradient assembly of **Matone et al.**, in which the gradient coils are hollow tubular cylinders, through which a cooling fluid flows as in figures 1 and 3 of **Matone et al.**, teach, show, and suggest that "the one Z primary coil-like element is made from hollow conductors," (i.e. copper tubes) "and that the one Z primary coil-like element is directly cooled by a cooling fluid flowing through said hollow conductors."

31. With respect to **Claims 8, 10**, **Vavrek et al.**, lacks directly teaching that "the two X primary coil-like elements and the two Y primary coil-like elements positioned at both sides of the one Z primary coil-like element are indirectly cooled by said directly cooled Z primary coil-like element." (i.e. **claim 8**) or that "the two X shield coil-like elements and the two Y shield coil-like elements positioned around the one Z shield coil-like element are indirectly cooled by the directly cooled Z shield coil-like element" (i.e. **claim 10**). However, It would have been obvious to one of ordinary skill in the art at the time that the invention was made that this limitation is suggested from the combination of **Vavrek et al.**, and **Matone et al.**, because cooling tubes 232, located within the gradient coil

Art Unit: 2859

assemblies are oriented so that a direct cooling occurs along the orientation of conventional z-axis gradient coils, and indirect cooling occurs for the gradient coils oriented in the two transverse directions (i.e. the x and y axis coils) [See figure 3]. The reasons as to why the configuration of **Vavrek et al.**, and **Matone et al.**, can be combined was previously recited in the rejection of **claim 7 remains the same** and need not be reiterated.

32. With respect to **Claims 12**, **Vavrek et al.**, lacks directly teaching that “the layer is positioned adjacent the inner coil arrangement, and that the GRP tube layer is positioned adjacent the outer coil arrangement.” Because **Vavrek et al.**, does not show the location of the GRP tube, However **Matone et al.**, shows this limitation from figures 1, 3, and teaches the use of a fiberglass cylinder 226, which is a GRP tube, and an epoxy layer in applicant’s recited location in paragraphs [0015] through [0023]. The reasons as to why the configuration of **Vavrek et al.**, and **Matone et al.**, can be combined was previously recited in the rejection of **claim 7. remains the same** and need not be reiterated.

33. With respect to **Claims 13**, **Vavrek et al.**, lacks directly teaching that the second X primary coil-like element and the second Y primary coil-like element are positioned between the one Z primary coil-like element and the epoxy or glass layer, and that the second X shield coil-like element and the second Y shield coil-like element are positioned between the one Z shield coil-like element and the GRP tube.” However **Matone et al.**, shows the epoxy layers and GRP tube from figures 1, 3, and teaches the use of a fiberglass cylinder 226, which is a GRP tube, and an epoxy layer in applicant’s recited location in paragraphs [0015] through [0023]. The fact that the gradient coil layer of **Matone et al.**, is actually a plurality of layers, has already been explained in the rejection of claims, 7, 9, 8, and 10 and need not be reiterated. The reasons as to why the configuration of **Vavrek et al.**, and **Matone et al.**, can be combined was previously recited in the rejection of **claim 7. remains the same** and need not be reiterated.

Prior Art of Record

34. The prior art made of record and not relied upon is considered pertinent to applicant’s disclosure.


Art Unit: 2859

- A) **Teklemariam et al.**, US patent application publication **2005/0146330 A1** published July 7^h 2005, filed September 17th 2004 with an effective us priority date of September 19th 2003
- B) **Clarke et al.**, US patent application publication **2005/0030028 A1** published Feb. 10th 2005, filed August 7th 2003.
- C) **Clarke et al.**, US patent **7,015,692 B2** issued March 21st 2006, filed August 7th 2003.

Conclusion

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.
36. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(571) 273-8300**.
37. Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TAF
March 5, 2007


Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800